



A.D. 1824 N° 5007.

S P E C I F I C A T I O N

OF

HUMPHRY JEFFREYS.

FLUE OR CHIMNEY FOR FURNACES, &c.

LONDON:

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Flue or Chimney for Furnaces, &c.

JEFFREYS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, HUMPHRY JEFFREYS, of the City of Bristol, Merchant, send greeting.

WHEREAS His present most Excellent Majesty King George the Fourth, by His Letters Patent under the Great Seal of Great Britain, bearing date at
5 Westminster, the Seventh day of October, in the fifth year of His reign, did, for Himself, His heirs and successors, give and grant unto me, the said Humphry Jeffreys, His especial licence that I, the said Humphry Jeffreys, my exors, admors, and assigns, or such others as I, the said Humphry Jeffreys, my exors, admors, and assigns, should at any time agree with, and no others, from
10 time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "**AN IMPROVED FLUE OR CHIMNEY FOR FURNACES AND OTHER PURPOSES;**" in which said Letters Patent there is contained a proviso obliging me, the said Humphry Jeffreys, by an
15 instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said Invention, in what manner the same is to be performed, and to cause the same to be inrolled in His Majesty's High Court of Chancery within two calendar months next and immediately after the date of the said part recited Letters Patent, as in and by the same, reference being
20 thereunto had, will more fully and at large appear.

NOW KNOW YE, that in compliance with the said proviso, I, the said Humphry Jeffreys, do hereby declare the nature of my said Invention to consist in a flue or chimney so constructed as to cause an artificial draught in the same, and to condense the smoke and other matters evolved in such manner

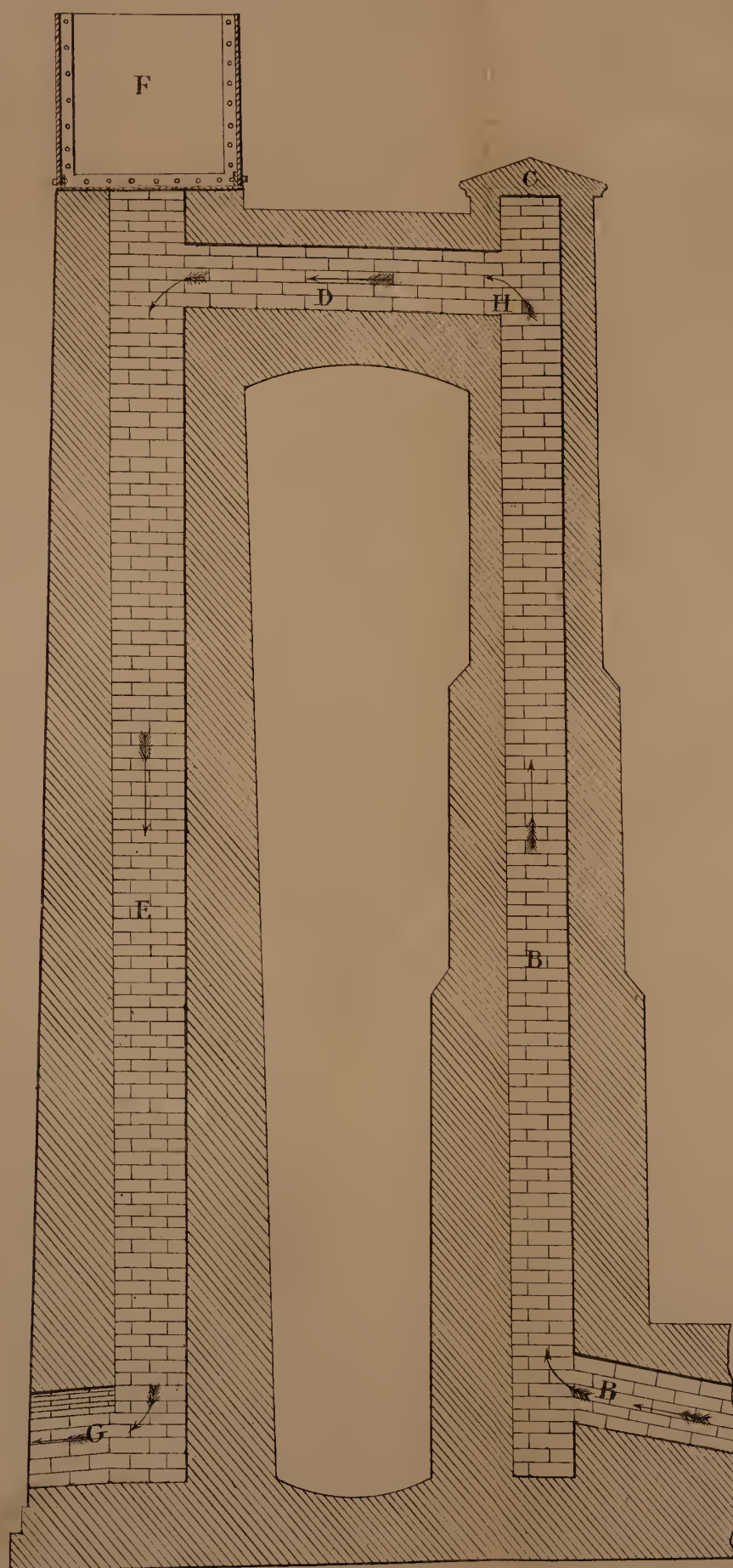
Jeffreys' Improved Flue or Chimney for Furnaces, &c.

as to prevent their escape into the atmosphere; and in further compliance with the said proviso, I, the said Humphry Jeffreys, do hereby describe the manner in which I perform my said Invention by the following description thereof, reference being had to the Drawing annexed, and the figures or letters marked thereon (that is to say):—

5

DESCRIPTION OF THE DRAWING.

The figure in the Drawing represents a section of one of my said improved flues. B represents the commencement of an ordinary flue proceeding from any common furnace, the top of which is closed at C sufficiently air-tight to prevent the escape of any smoke. This part of the flue I shall call, by way of 10 distinction, the smoke passage. E is a second passage or shaft, which I call the condensing shaft, and may be built either beside the smoke passage, the central partition wall being common to both, or at any convenient distance from it, provided always that the apperture of this shaft be perpendicular in its whole length. At the top of the condensing shaft E is a cistern F, which must receive 15 a constant supply of water from some convenient source. The bottom of this cistern must be perforated with small holes, so as to create an artificial shower when supplied with water, and the said supply of water must of course be regulated so as to meet the waste occasioned by the said holes. At the bottom of the shaft E is an opening or passage G, by or through which the fallen 20 water, condensed smoke, and all other matters which have descended, pass into a tank or drain, as the case may be, for the purpose of conveying the same to any convenient distance. In this Figure or Drawing the condensing shaft is represented as separated from the smoke passage, and D represents a communication passage leading from the top of the smoke passage to the top of the 25 condensing shaft, into which it should enter, just under the cistern F. This communication passage should in all cases be of as large dimensions as the smoke passage. It should here be observed, that when the smoke passage and the condensing shaft have one common wall to divide them, an aperture in the said wall, corresponding to that at H in the Drawing annexed, will suffice, 30 without any communication passage. Now by the foregoing arrangement of flue or chimney it will be seen that if smoke rise from the furnace into the smoke passage, and thence proceed into the condensing shaft, and if water be admitted into the cistern, and suffered to pass through the said holes in the bottom of the said cistern, down the condensing shaft, a draught will be occa- 35 sioned that will draw the smoke and other matter evolved from the furnace from the smoke passage into the condensing shaft, where it will be condensed and carried down with the falling water into the tank or drain below, as herein-



The enrolled drawing is partly colored.

Drawn on Stone by Malby & Sons

Jeffreys' Improved Flue or Chimney for Furnaces, &c.

before described. And such an arrangement of a flue or chimney for the purposes aforesaid, and effecting the draught and condensation aforesaid, in manner aforesaid, being, to the best of my knowledge and belief, entirely new and never before used in these kingdoms, I do hereby declare this to be my
 5 Specification of the same, and that I do verily believe this my said Specification doth comply in all respects, fully and without reserve or disguise, with the proviso in the same herein-before in part recited Letter Patent contained, wherefore I do hereby claim to maintain exclusive right and privilege to my said Invention.

10 In witness whereof, I, the said Humphry Jeffreys, have hereunto set my hand and seal, this Fifteenth day of November, One thousand eight hundred and twenty-four.

HUM^y JEFFREYS. (L.S.)

15 AND BE IT REMEMBERED, that on the Fifteenth day of November, in the year of our Lord 1824, the aforesaid Humphry Jeffreys came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

20 Inrolled the Twenty-fifth day of November, in the year of our Lord One thousand eight hundred and twenty-four.

LONDON :

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 Printers to the Queen's most Excellent Majesty. 1855.

1. The first part of the paper is devoted to a general discussion of the problem of the existence of a solution of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system has a solution for arbitrary values of the parameters α and β if and only if the condition $\alpha + \beta = 1$ is satisfied.

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FIG. 1.

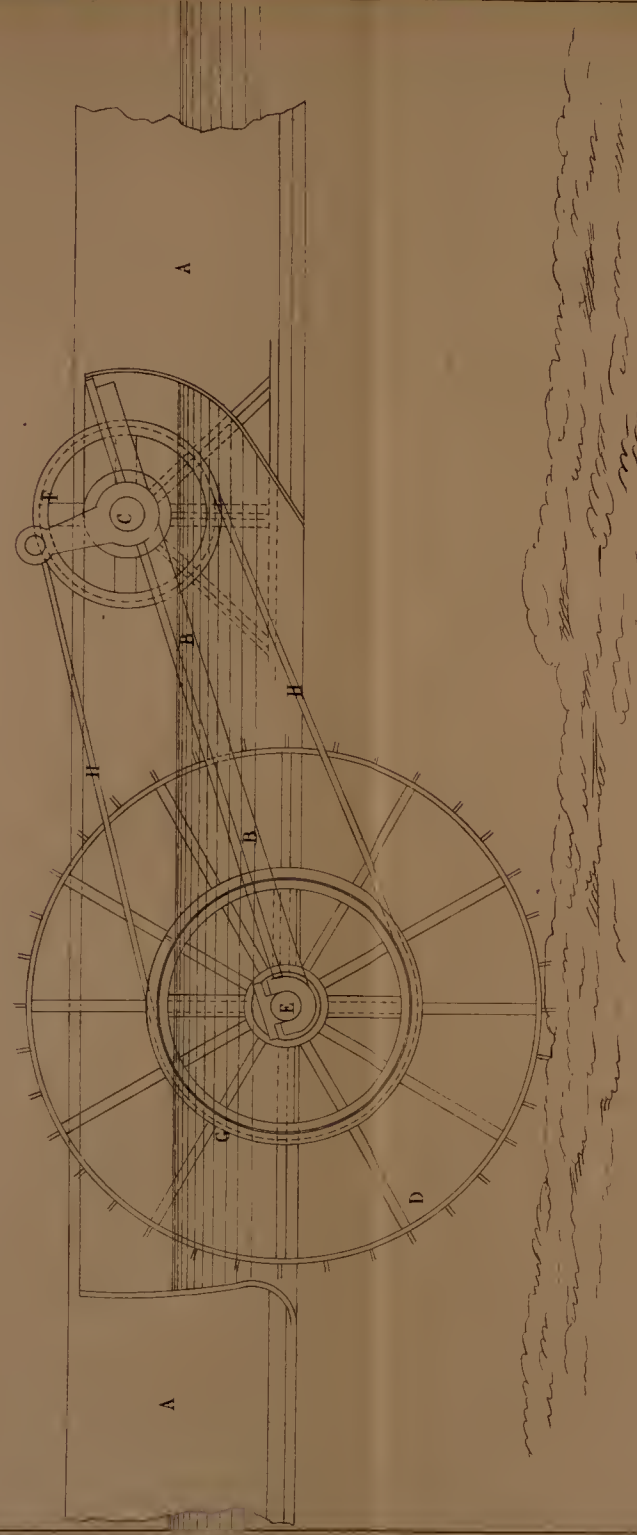


FIG. 2.

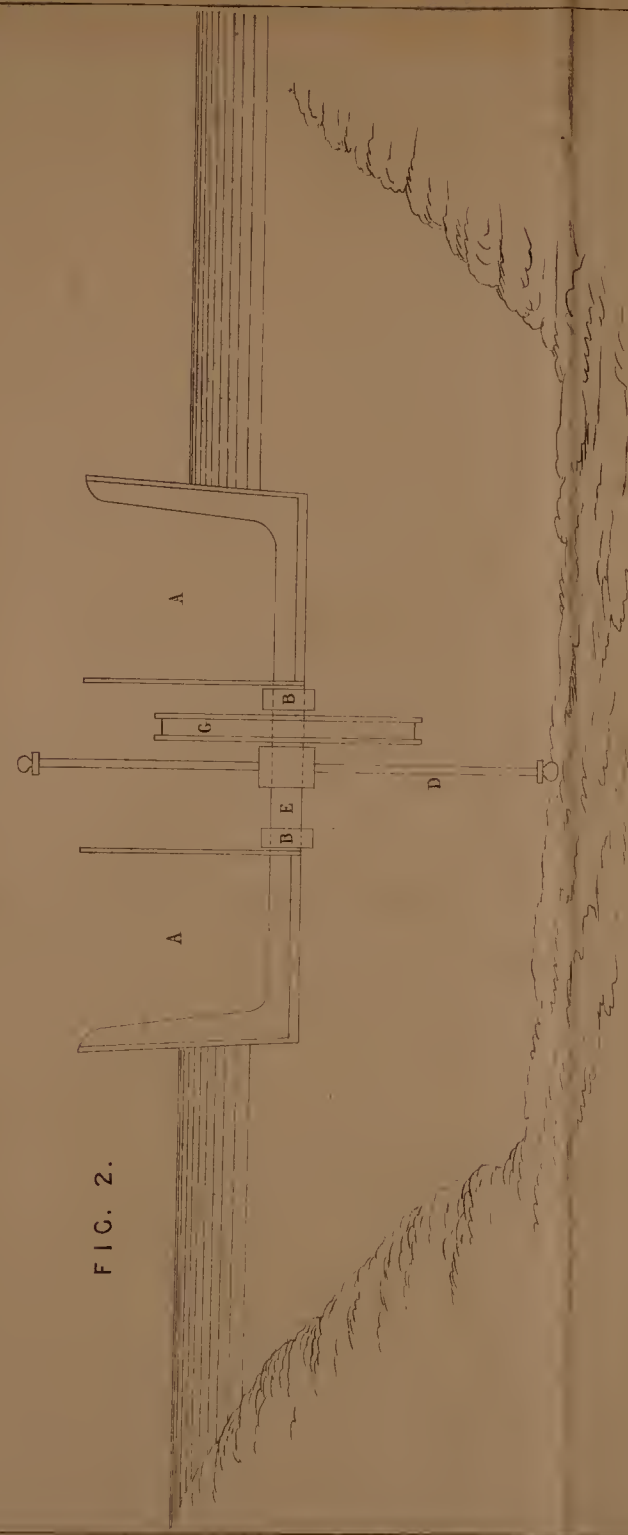


FIG. 3.

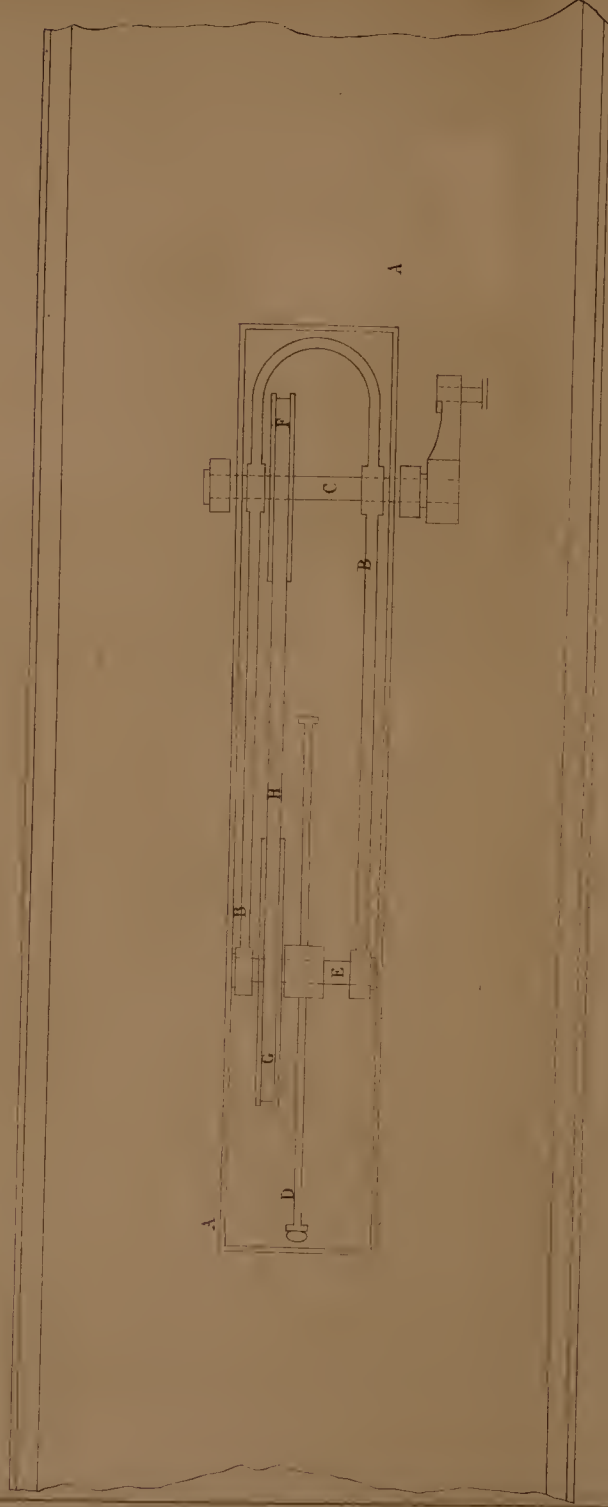


FIG. 4.

